

WE CLAIM:

1. A method for reserving resources in a wireless network, said method
2 comprising the steps of:
 - 3 monitoring a resource to obtain a resource value;
 - 4 estimating resources needed for radio dependent and radio independent
 - 5 layers based on said monitored resource value; and
 - 6 reserving said needed resources at the radio dependent and radio
 - 7 independent layers based on said estimate.
1. 2. The method of claim 1 wherein said monitoring step further includes the
2 step of monitoring call arrivals, resource requirement, and resource usage.
1. 3. The method of claim 2 further comprising the step of updating the rate at
2 which said estimating is done if the difference in resource usage is greater than or
3 equal to a pre-determined value.
1. 4. The method in accordance with claim 3 wherein said step of estimating
2 further includes the step of modeling the resources needed as a Wiener process.
1. 5. The method in accordance with claim 3 said calls are handoff calls.
1. 6. The method in accordance with claim 3 wherein said calls are new calls
2 originating within a cell.
1. 7. The method in accordance with claim 3 wherein said calls are handoff
2 calls and new calls originating within a cell.
1. 8. A method for reserving resources in a mobile wireless internet protocol
2 network, said method comprising the steps at a base station of:
 - 3 monitoring call arrivals and resource requirements;
 - 4 responsive to said monitoring, estimating the radio dependent and radio
 - 5 independent resources required; and

6 instructing radio independent and radio dependent layers to reserve the
7 estimated resources for future calls.

1 9. The method in accordance with claim 8 wherein said estimating step
2 resides at a radio- independent layer of the internet protocol.

1 10. The method in accordance with claim 8 further comprising increasing the
2 rate of said monitoring step if the difference in resource usage is greater than or
3 equal to a threshold value.

1 11. The method in accordance with claim 10 wherein said estimating step
2 comprises Wiener process-based stochastic models.

1 12. The method in accordance with claim 11 wherein said estimating step
2 resides at a radio-independent layer of the internet protocol.

1 13. The method of claim 12 wherein said calls are handoff calls.

1 14. The method in accordance with claim 12 wherein said calls are new calls
2 originating within a cell.

1 15. The method in accordance with claim 12 wherein said calls are handoff
2 calls and new calls originating within a cell.

1 16. The method in accordance with claim 8 wherein said step of monitoring
2 monitors instantaneous values of handoff call arrivals and resource requirements.

1 17. The method in accordance with claim 8 wherein said instructing step
2 causes reservation of both radio resources and internet protocol layer resources.

1 18. The method in accordance with claim 17 wherein said estimating step is
2 based on a stochastic model.